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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/327,744	10/24/1994	M. ANTHONY STONE	3309P-65	8729

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EXAMINER

GOODMAN, CHARLES

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 10/06/2003

421

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/327,744

Applicant(s)

STONE ET AL.

Examiner

Charles Goodman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on August 7, 2003 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted Prior Art (hereinafter referred to as 'Prior Art' - specification p. 1, ll. 8-28) in view of McComas et al and Carr.

The Prior Art discloses the invention substantially as claimed including the metal honeycomb structure of abradable seals and the art recognized fact that these seals are periodically removed by various means. However, the Prior Art lacks a specific teaching for removing the seal via a pressurized liquid at a specific angle and striking location. In that regard, McComas et al clearly teaches that it is common practice in the art to perform routine engine maintenance which frequently requires removal of coatings in

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the abradable seals. See c. 1, ll. 60-67. Specifically, McComas et al clearly teaches a method of removing coating (1), i.e. abradable seals, by utilizing a high pressure liquid stream (5) directed at the abradable seal at an angle and removing the same by relative movement between the seal and the stream, this step including pressure and angle of the liquid stream as claimed, wherein this method allows for removal of the seal without damaging the substrate. See Figs. 1-1A, Abstract, c. 1, l. 19 - c. 3, l. 66. Thus, McComas et al at the very least teaches that removal of abradable seals via pressurized liquid stream is one of various methods known in the art. Moreover, Carr teaches a method of removing a coating (30, 32) wherein the optimal angle for the pressurized liquid stream (24) in facilitating removal of the layer during movement with respect to the work is less than 90° since that angle allows for more removing media to be available to dislodge the layer from the substrate - the layer being removed includes a "brazed" since the adherent of the adhered layer clearly encompasses "brazed." Fig. 2, c. 4, ll. 55-66. Thus, it would have been obvious to the ordinary artisan at the time of the instant to provide the Prior Art with the step of removing the honeycomb structure by directing a high pressure liquid stream striking the substrate at the base of the honeycomb at an angle less than 90° as taught by McComas et al and Carr in order to facilitate removal of the honeycomb and braze without damaging the substrate.

Regarding claim 8, the modified method of the Prior Art includes the ribbon direction since the straight line movement of the liquid would be in parallel direction to the impinged ribbon of the honeycomb.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiembob, Ryan, or Ackerman in view of McComas et al and Carr.

Shiembob, Ryan, or Ackerman all disclose various forms of abradable seals for gas turbine engine comprising a metal honeycomb, braze, and substrate structure. More specifically, Shiembob teaches an insulated honeycomb seal for gas turbine engines comprising a honeycomb (2) that is inherently brazed onto a substrate (18). See whole patent. Ryan teaches another abradable seal for gas turbine engines comprising a honeycomb (2) brazed onto a substrate (1). See whole patent. Ackerman teaches a further example of an abradable seal comprising a honeycomb (28) which is inherently brazed onto a substrate (not designated by reference but see Fig. 1). See whole patent. However, none of these references specifically teach a method of removal of the honeycomb and braze from the substrate. In that regard, McComas et al clearly teaches that it is common practice in the art to perform routine engine maintenance which frequently requires removal of coatings in the abradable seals. See c. 1, ll. 60-67. Specifically, McComas et al clearly teaches a method of removing coating (1), i.e. abradable seals, by utilizing a high pressure liquid stream (5) directed at the abradable seal at an angle and removing the same by relative movement between the seal and the stream, this step including pressure and angle of the liquid stream as claimed, wherein this method allows removal of the seal without damaging the substrate. See Figs. 1-1A, Abstract, c. 1, l. 19 - c. 3, l. 66. Thus, McComas et al at the very least teaches that removal of abradable seals via pressurized liquid stream is one of various methods known in the art. Moreover, Carr teaches a method of removing a coating (30, 32) wherein the optimal angle for the pressurized liquid stream (24) in facilitating removal of the layer during movement with respect to the work is less than 90° since that angle allows for more removing media to be available to dislodge the layer from the substrate -

the layer being removed includes a "brazing" since the adherent of the adhered layer clearly encompasses "brazing." Fig. 2, c. 4, ll. 55-66. Thus, it would have been obvious to the ordinary artisan at the time of the instant to provide Shiembob, Ryan, or Ackerman with the step of removing the honeycomb structure by directing a high pressure liquid stream striking the substrate at the base of the honeycomb at an angle less than 90° as taught by McComas et al and Carr in order to facilitate removal of the honeycomb and braze without damaging the substrate.

Regarding claim 8, the modified method of the Shiembob, Ryan, or Ackerman includes the ribbon direction since the straight line movement of the liquid would be in parallel direction to the impinged ribbon of the honeycomb.

Response to Arguments

6. Applicant's arguments filed August 7, 2003 have been fully considered but they are not persuasive.

In response to Applicant's basic argument that the claimed invention is not rendered obvious because of the decision by the Board of Patent Appeals and Interferences (hereinafter referred to as the Board),¹ this argument lacks merit.

Initially, it is noted that the Applicant failed to address the rejection in which the Admitted Prior Art (hereinafter referred to as Prior Art) was used as a primary reference. Thus, such an omission is construed as a concession of the Applicant to the extent that the Prior Art discloses the invention substantially as claimed including the metal honeycomb structure of abradable seals and the art recognized fact that these

seals are periodically removed by various means with the exception being that the Prior Art lacks a specific teaching for removing the seal via a pressurized liquid at a specific angle and striking location. Moreover, due to the lack of specific argument against the combination of the Prior Art and the other applied references, the Examiner will construe this, on the one hand, as an admission that the claimed invention as being obvious. On the other hand, if Applicant's arguments against Carr should be construed as rebuttal against the combination of Prior Art in view of McComas et al and Carr, then this will be addressed *infra*.

Another point of note is the attempt by the Applicant to de-emphasize the thrust of the Board's decision which is not well taken. Applicant's remarks are couched in the assertion that the Board reversed the Examiner wholesale on all the applied references when this is not the situation at all. The Board specifically stated the following in the decision:

"From our perspective, the combined teachings of the applied prior art, understood in light of the acknowledged background in the art (appellant's specification, page 1), would have been suggestive to one having ordinary skill in the art of removing honeycomb and braze from a substrate by directing a liquid stream at the top of the honeycomb until the braze is exposed. The motivation for practicing the latter method would have been the teaching of McComas, in particular, in explicitly revealing liquid jet erosion as a viable alternative that does not result in substrate damage, the consequence of other known removal techniques."²

¹ Amendment D, Paper No. 41, p. 3, l. 2 - p. 6, l. 24.

The only fault or deficiency that the Board attributed to the Examiner's rejection of the claims was for the recitation "striking the substrate at the base of the honeycomb."³ In sum, the Board found the invention to be obvious to the extent that the combined teachings of the prior art renders obvious the method of applying jet erosion process for removal of honeycomb. The Board DID NOT reject the applicability of any of the references that the Examiner applied. Therefore, the only issue to be resolved is whether or not it would have been obvious to direct the liquid jet as claimed. The Examiner's response thereto will be addressed *infra*.

A further point of note is that Applicant's arguments are couched in traversal of the Carr reference alone. Therefore, these arguments must fail because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Note that in the rejections *supra*, the limitation "striking the substrate at the base of the honeycomb" is rendered obvious by the combined teachings of McComas et al and Carr.

In response to Applicant's basic argument that Carr is nonanalogous art,⁴ it has been held that a prior art reference must either be in the field of Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the Applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

² Board Decision, Paper No. 39, p. 4, ll. 8-17.

³ *Id.*, p. 4, l. 17 - p. 5, l. 1.

⁴ *Id.*, p. 4, l. 13 - p. 6, l. 5.

In this case, Carr is fully analogous prior art contrary to Applicant's assertions for both of the reasons set forth above.

First, Carr is within the field of Applicant's endeavor in that both concern removal of the unwanted layer from the substrate vis-à-vis pressurized liquid or media, i.e. cleaning and/or removing the unwanted layer so as to facilitate reuse of the substrate. In Carr, pressurized media is used to remove adherent material, such as paint or *other coverings*, from surfaces, whereas Applicant's invention is directed to removing the metal honeycomb and braze from the substrate. It is noted that the honeycomb and braze are "adherent material" because these parts combined are adhered to the substrate, and Carr's "other coverings" would encompass honeycomb and braze to the extent that the honeycomb and braze form a covering on the substrate as noted by the teachings of McComas et al as well as Applicant's disclosure. Note also in Carr, e.g., c. 2, ll. 1-4, which further supports the Examiner's conclusion that Carr is analogous art.

That portion states:

"Blast cleaning with plastic media has been shown to be effective on the metal parts of *aircraft*, but was not previously considered suitable for stripping composites." (Emphasis added.)

That portion of Carr's teachings are related to the prior art of Carr. Applicant's honeycomb and braze are involved in the aircraft industry. Thus, Carr's teachings are analogous since Carr recognizes the use of Carr's method in aircraft parts.

Second, even if Carr *may* not be within the field of Applicant's endeavor, Carr is still analogous to the extent that Carr is reasonably pertinent to the particular problem with which the Applicant was concerned, namely a method of removing the unwanted layer without damaging the substrate. Applicant has argued numerous times that conventional removal methods, i.e. non liquid jet erosion process, resulted in damaging the substrate and thereby undermining the reusability of the substrate. In the same vein, Carr's teachings also recognized that convention removal methods results in damaged substrates. Thus, Carr uses pressurized media containing relatively "soft" particles to remove the undesirable layer.

Third, Applicant's assertion regarding the pressure and the use of media in Carr versus that of the claims is irrelevant.⁵ Carr's teachings have been applied with respect to the directing angle as opposed to any pressure or media in claim 1. Notably, claim 1 does not include any limitations regarding the specific pressure nor does the claim include any limitations as to whether or not other media may be included in the stream. Thus, it is emphasized that Applicant's assertions along these points are irrelevant. Applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). This is in reference to claim 1. Moreover, McComas et al already teaches the pressure of the liquid stream. Therefore, there is no need to consider such teachings with respect to Carr. The fact that Carr uses pressurized media is a *prima facie* case of obviousness for the claimed

⁵ *Id.*, p. 5, ll. 1-15.

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directing angle as taught and suggested by Carr in combination with the teachings of McComas et al.

Fourth, Applicant's assertion that Carr somehow teaches away from the present invention⁶ is clearly unwarranted and wholly lacks merit. This appears to be another attempt by the Applicant to misdirect and misconstrue the teachings of Carr. Applicant's assertion of Carr's "best method" is far off point in the context of Carr's teachings. That portion of Carr's reference clearly states "*Another preferred step* in the cleaning process..." (emphasis added - c. 5, ll. 3-5). "Another preferred step" means that this is an alternative method of practicing Carr's invention. Where does Carr state that this is the "best"? Moreover, how is it possible to reconcile this alleged adverse teaching to that of Carr's teaching in c. 4, ll. 55-66, which clearly and unambiguously teaches directing the flow at less than 90 degrees with respect to the perpendicular, the flow impinging the leading edge (34) which from Fig. 2 clearly shows to be the adhered junction between the substrate and the composite layers, i.e. analogous to the claimed base of the honeycomb? None of Applicant's arguments even touch upon this primary teaching of Carr.

Fifth, in response to Applicant's basic assertion that Carr does not teach any criticality between the various interface or surfaces,⁷ this argument wholly lacks merit. This argument is couched in the misdirected assertion that Carr's method is "unfocused." This assertion flies in the face of specific teachings of Carr in which the interface between the composite layer and the substrate surface is of importance as

⁶ *Id.*, p. 5, ll. 16-24.

⁷ *Id.*, p. 5, l. 25 - p. 6, l. 5.

noted in c. 4, ll. 55-67 of Carr. Furthermore, it is irrelevant whether Carr includes a *specific* or *explicit* reference to directing the stream to the “substrate at the base of the honeycomb”, since both the Prior Art and Shiembob, Ryan, or Ackerman all teach that periodic removal of metal honeycomb is known, since McComas et al teaches the obviousness of using liquid jet erosion to remove that honeycomb and braze layer, i.e. “coating” as defined by McComas et al, and since Carr teaches the obviousness of removing the unwanted layer by directing the stream at the interface between the unwanted layer and the substrate. The teachings of the references combined teach the obviousness of directing the stream as claimed since that results in having more media involved in removing the unwanted layer.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Charles Goodman whose telephone number is (703) 308-0501. The examiner can normally be reached on Monday-Thursday between 7:30 AM to 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan Shoap, can be reached on (703) 308-1082.

In lieu of mailing, it is encouraged that all formal responses be faxed to 703-872-9302. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is 703-308-1148.

cg

October 3, 2003


Charles Goodman
Primary Examiner
AU 3724

CHARLES GOODMAN
PRIMARY EXAMINER